seen by daytime half-an-hour before sunset. In this case also no sensible distortion was witnessed, although the terrestrial atmosphere was not so still as at the immersion.

"I have made some researches on the polarisation of the light reflected by the moon, and have been surprised to see the enormous difference between the mountains and the seas. It is very curious to see, for instance, the *Mare Crisium*, and other craters still smaller, polarised completely in the inner part, and only in a small degree in the outlines and ridges of the mountains. The maximum polarisation of the moon is at the seventh day of her age. The full moon is not at all polarised, *Jupiter*, *Saturn*, and *Mars*, are not more polarised than our clouds; in other words, the polarisation is insensible."

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On the Deduction of the Latitude from Transits over the Prime Vertical. By Captain Tennant, B.E.

Let $\varphi_{(1)}$ denote the co-latitude cleared of the effects of instrumental error, $\varphi'_{(1)}$ the uncorrected value of the co-latitude, $\delta_{(1)}$ the polar distance of the star observed, θ its hour-angle at observation. Also let $\varkappa''$ be the collimation-error, or the amount by which the small circle described by the mean of the wires differs from the great circle perpendicular to the axis of motion, $\varkappa$ being positive when the small circle is north of the other. Let η be the angle between the north point and the place where the instrument free from collimation would cut the horizon, and $\eta''_{(1)}$ its complement in seconds, which is the error in azimuth, and is negative when the direction of the axis of motion lies between the true meridian and the star's azimuth at transit, or when η is greater than 90°. Also let μ'' be the level-error, positive when the south end of the axis is too high, and negative if the north end be highest. The author then investigates the different corrections, and finally obtains the following expression:—

$$\varphi_{(1)} = \varphi'_{(1)} + \mu'' + \varkappa'' \cos \varphi'_{(1)} \sec \delta_{(1)} + \eta''_{(1)} \sin \varphi'_{(1)} \tan \theta.$$

In a subsequent communication the author has given formulæ for reducing the transits to the mean of the wires. Both papers will be printed *in extenso* in the volume of *Memoirs*.

On a Method of Determining the Latitude by Transits. By Captain J. F. Tennant, B.E.

In this paper the author has investigated the formulæ for the effects of instrumental error in the case wherein the stars observed are not situate in the prime vertical. His object is, by means of the expressions thus obtained, to determine the

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latitude when it is of small value; the method of prime vertical transits being, in his opinion, not so conveniently applicable in that case.

The President called the attention of the meeting to some communications which he had received from Mr. Slater, 136 Euston Road, relative to an object which had recently come under his observation, while examining a portion of the heavens with his large refracting telescope, of $14^{\text{in}}\cdot78$ aperture. In a letter, dated May 21, Mr. Slater states that in February last he was engaged in sweeping the region from ξ *Bootis* westward, with a power of 180, when in the position $11^{\text{h}}\ 48^{\text{m}}$ R.A., or $2^{\text{h}}\ 56^{\text{m}}$ west of the star just mentioned, the declination remaining unaltered, he saw something which looked very like a comet. In the field of view of the telescope, which subtended an angle of 30′, there were visible at the same time with the object three small stars of about the eighth magnitude, which formed almost a right angle. The declination of the object was found to exceed that of ξ *Boötis* by 8′. Mr. Slater watched the object during the evening, but could not detect any alteration in its position relatively to the three stars. After a month's unfavourable weather he again directed the telescope to the object, when he suspected that an alteration of its position had occurred. During the first week in May, before the interference of moonlight, he carefully examined the position of the object, comparing it with the earliest observation, and the alteration was now so manifest that the micrometer was not needed to detect it. In the month of February he could not see the object with a less aperture than 10 inches, and in May an aperture of 11·5 inches was necessary to render it visible.

Mr. Slater used several diaphragms for the purpose of ascertaining what size of telescope was required to see it. The best effect was with the whole aperture of $14^{\text{in}}\cdot78$.

In a second letter, dated May 23, Mr. Slater states that he again examined the object on the previous evening at $10^{\text{h}}\ 30^{\text{m}}$ G.M.T., when he succeeded in seeing it, but with difficulty. The nebulous appearance was not so decided as when first seen; it now looked more like two faint stars about 10″ apart. It appeared to have altered in position since he last saw it, on the evening of the 7th of May. According to the sketches which accompanied Mr. Slater's letters the object would seem to be travelling towards the north.

Captain Jacob has requested the Editor to announce that the observations of the minor planets printed in the *Monthly Notices* for May, though communicated by him, were chiefly made by the native assistants in the Madras Observatory.

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